

## REMARKS

Claims 1-5, 7-16, 19-20 and 22-56 are pending. In view of the following, all of the pending claims are in condition for allowance. If, after considering this response, the Examiner does not agree that all of the claims are allowable, then it is respectfully requested that the Examiner schedule a teleconference with the Applicant's attorney to further the prosecution of the application.

### **Rejection of claims 1-2, 4-5, 7-16, 19-20 and 22-56 under §103(a) as being unpatentable over Leis et al. (US 5,862,005)**

#### **Claim 1**

Claim 1 recites a position-burst demodulator including an input circuit operable to receive even and odd samples of a first servo position burst, to add the even samples to generate a first sum and to add the odd samples to generate a second sum; an intermediate circuit operable to square the first and second sums, and to add the squared first and second sums to generate a third sum; and an output circuit operable to calculate the square root of the third sum.

For example, referring, e.g., to FIGS. 5-7 and paragraphs 31-40 of the present application, a position-burst demodulator 70 includes an input circuit (adder) 72 operable to receive even and odd samples of the servo position burst, to add the even samples to generate a first sum  $E$  and to add the odd samples to generate a second sum  $O$ . An intermediate circuit 74,76 is operable to square the first sum  $E^2$  and square the second sum  $O^2$ , and to add the squared first and second sums to generate a third sum  $E^2 + O^2$ . An output circuit 78 is operable to calculate the square root of the third sum. It should be noted that the sequence of samples of the servo position burst is divided into alternating even- and odd-numbered samples. The even samples are handled separately by circuits 72a and 74a, and the odd samples are handled separately by circuits 72b and 74b. As a result, the even and odd samples are effectively averaged separately to filter out noise that may contaminate the burst sinusoid.

In contrast, Leis et al. neither discloses nor suggests a position-burst demodulator including an input circuit operable to receive even and odd samples of a first servo position burst, to add the even samples to generate a first sum and to add the odd samples to generate a second sum; an intermediate circuit operable to square the first and second sums, and to add the squared first and second sums to generate a third sum; and an output circuit operable to calculate the square root of the third sum. Instead, Leis et al. discloses a burst detector 55 that multiplies the sample waveform by two orthogonal sine waves having a phase offset of  $90^\circ$  (FIG. 14B; col. 14, lines 14-35). Each and every sample is multiplied by both the sine wave (multiplier 551) and the cosine wave (multiplier 554). However, this has nothing to do with separating the servo position burst into separate even- and odd-numbered samples, summing the even-numbered samples separately from the odd-numbered samples, and then squaring the sum of the even-numbered samples separately from the sum of the odd-numbered samples. The Examiner states on page 2 of the Office Action that a sine wave is an odd function, and that a cosine wave is an even function. However, multiplying a sample by an odd function is entirely different from an odd-numbered sample. Similarly, multiplying a sample by an even function is entirely different from an even-numbered sample. As described throughout the present application, the even and odd samples are defined as even-numbered and odd-numbered samples of the same sinusoid. Leis, on the other hand, does not separate the sample waveform into even-numbered and odd-numbered samples. Instead, Leis multiplies each and every sample (both even and odd) by both an odd function (sine wave) and an even function (cosine wave). After reviewing Leis in its entirety, the Applicants' attorney is unable to find any mention of separating a servo position burst into separate even- and odd-numbered samples, summing the even samples separately from the odd samples, and then squaring the sum of the even samples separately from the sum of the odd samples. Therefore, Leis does not satisfy the limitations of claim 1.

**Claims 4-5, 8-12, 14-16, 19-20, 23-24 and 26-29**

Claims 4-5, 8-12, 14-16, 19-20, 23-24 and 26-29 are patentable for reasons similar to those recited above in support of the patentability of claim 1.

**Claims 2, 7, 13, 22, 25 and 30-56**

Claims 2, 7, 13, 22, 25 and 30-56 are patentable by virtue of their respective dependencies from independent claims 1, 5, 8-10, 12, 15-16, 20, 23-24 and 27-29.

**Rejection of claim 3 under §103(a) as being unpatentable over Leis et al. in view of Patapoutian et al. (US 5,661,760)**

Claim 3 is patentable by virtue of its dependency from independent claim 1.

## CONCLUSION

In view of the foregoing, all pending claims are in condition for allowance. Therefore, the issuance of a formal Notice of Allowance at an early date is respectfully requested.

If, after considering this response, the Examiner does not agree that all of the claims are allowable, then it is respectfully requested that the Examiner contact the Applicants' agent, J. Mark Han, at (425) 455-5575.

In the event additional fees are due as a result of this amendment, you are hereby authorized to charge such amount to Deposit Account No. 07-1897.

DATED this 26<sup>th</sup> day of December, 2006.

Respectfully Submitted,

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A handwritten signature in black ink, appearing to read 'J. Mark Han', is written over a horizontal line.

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